

Claims 5, 6, 9 and 12-14 were rejected under 35 USC 103(a) as being unpatentable over Takikawa et al., U.S. Patent No. 5,402,829 considered in view of Duret et al., U.S. Patent No. 4,469,356. The Examiner identified elements of the Takikawa et al. reference that were considered to correspond to the high-pressure pipe assembly of claim 5 as existing prior to this amendment. The Examiner acknowledged, however, that the Takikawa et al. reference fails to disclose a sleeve that engages and surrounds at least portions of the cylindrical surface of the connecting head. The Examiner then turned to the Duret et al. reference in an effort to overcome this deficiency of Takikawa et al. The Examiner asserted that the Duret et al. reference teaches the use of a sleeve washer 14 over a cylindrical body of a metal pipe 16. Accordingly, the Examiner asserted that it would be obvious to combine Takikawa et al. and Duret et al. and that the hypothetical combination would suggest the invention defined by claim 5 as existing prior to this amendment.

As noted previously during the prosecution of this application, the Takikawa et al. reference is assigned to the assignee of the subject invention, and the applicant herein is familiar with the teaching of Takikawa et al. The connecting head 2 of Takikawa et al. is formed from a pipe 1 that initially is of uniform inside and outside diameter along its length. The formation process of the connecting head of Takikawa et al. creates a distinct crimp on the inner circumferential surface of the pipe near the connecting head. That crimp is shown in the FIGS. 1, 2, 4 and 7 of Takikawa et al., but is not discussed. The applicant herein has determined that the distinct crimp inherent in a Takikawa et al. type of connecting head creates turbulence and can lead to cavitation-related failures of the pipe. The Examiner correctly noted that Takikawa also shows a sleeve washer 4 disposed adjacent the rear bearing face of the connecting head of Takikawa et al. There is

absolutely no suggestion in the Takikawa et al. of reconfiguring the dies 5 and 6 of Takikawa et al. so that a portion of the sleeve washer 4 would extend forwardly from the bearing face of the connecting head.

The Duret et al. reference is directed to a connecting device for thin-walled tubes that quite clearly are directed to low pressure environments. The specification of the Duret et al. reference emphasizes the importance of a light weight for the elements of the disclosed connecting device. The sleeve 14 of Duret et al. is of uniform thickness along its length and is formed with the end of the pipe 16 so that the sleeve 14 and pipe 16 follow the same contours. The cross-section of the Duret et al. reference clearly indicates that the Duret et al. reference is not at all concerned with internal surface irregularities that could create turbulence or cavitation-related failures. This internal configuration further emphasizes that the Duret et al. reference is intended for a low-pressure environment. The sleeve 14 of the Duret et al. reference clearly does not have an outer cylindrical surface that is aligned with both first and second inner cylindrical surfaces. Rather, the sections of the Duret et al. sleeve that the Examiner would consider to be the first and second inner cylindrical surfaces align respectively with first and second different outer cylindrical surfaces so that a uniform thickness of the sleeve 14 exists along the entire length of the sleeve.

To support an obviousness rejection, there must be something in the references that would motivate the skilled artisan to combine the references. *In re Dembiczak*, 50 USPQ2d 1614 (Fed. Cir. 1999). In this instance, the Takikawa et al. reference clearly is directed to a high-pressure environment that is relevant to the subject matter of the claimed invention. The Duret et al. reference, on the other hand, clearly is directed to a low-pressure environment. People skilled in this art unquestionably

understand that structures that are suitable for a low-pressure environment are not necessarily adaptable to a high-pressure environment. Thus, the skilled artisan would not be motivated to pick and choose separate components of low-pressure connectors for incorporation into a high-pressure fluid connector.

It is necessary to consider why the art evolved from the assignee's earlier Takikawa et al. reference to the invention defined by claim 5. As noted above, the inventor herein identified the potential for cavitation related failures due to the well defined crease created on the inner circumferential surface of the connecting head due to the formation process of the connecting head. The Takikawa et al. reference is silent as to that problem and hence is silent as to structural reconfigurations that might address the problem.

The Duret et al. reference also is silent with respect to the problem addressed by the subject invention and certainly is silent with respect to solutions to that problem. As noted above, the overall structure taught by Duret et al. would be much more likely than Takikawa et al. to lead to cavitation-related failures if the Duret et al. connector was used in a high-pressure environment. Thus, there is certainly no reason why the skilled artisan would be motivated to combine the teaching of these two references in the manner suggested by the Examiner.

It is submitted that the invention defined by amended claim 5 clearly is different from the hypothetical Takikawa et al./Duret et al. combination. In particular, the hypothetical combination would require the skilled artisan to place the Duret et al. sleeve 14 of uniform thickness over the end of the pipe and then to deform both the sleeve 14 and the pipe so that the resulting sleeve was of uniform thickness at all locations along the overlapping lengths of the sleeve and the pipe. There is no way that the hypothetical combination of Takikawa et al. and Duret et al. would lead to a sleeve washer with first and

second inner cylindrical surfaces and an outer cylindrical surface aligned with portions of both the first and second inner cylindrical surfaces as in amended claim 5. This configuration necessarily leads to a sleeve washer with a first portion having a first radial thickness and a second portion having a second radial thickness that exceeds the first radial thickness, positively recited as in amended claim 5. As a result, the claimed structure can achieve a specified wall thickness and strength adjacent the connecting head without creating the potentially troublesome crimp in the passage of Takikawa et al.

The Examiner appears to have appreciated this deficiency in the hypothetical combination and has attempted to address that deficiency with an inappropriate reference to *in re Dailey* and a summary statement that "a change in the shape of a prior art device is a design consideration within the level of skill of one in the art." In fact, the above-quoted section of the Official Action is not consistent with the holding of *in re Dailey*. Rather, the Court of *in re Dailey* held:

"Appellants have presented no argument which convinces us that the particular configuration of their container is significant or is anything more than one of numerous configurations a person of ordinary skill in the art would find obvious for the purpose of providing mating surfaces in the collapsed container of [the prior art reference]."

Here, the entire application and the arguments presented above clearly do explain why "the particular configuration... is significant." For the reasons explained above, the particular configuration set forth above clearly is not "one of numerous configurations a person of ordinary skill in the art would find obvious."

In this instance, amended claim 5 quite clearly defines a structure that is different from anything shown in the references, individually or in combination, and achieves a significant advantage in view of these differences. It is submitted that the Examiner has inadvertently leaped to a conclusion of obviousness based on hindsight

gained from the teaching of the applicant herein. *In re Dembiczak*, 50 USPQ2d 1614 (Fed. Cir. 1999), *McGinley v. Franklin Sports Inc.*, 60 USPQ2d 1001 (Fed. Cir. 2001). This is an inappropriate application of 35 USC 103. For these reasons, it is submitted that the invention defined by amended claim 5 and its dependent claims 6, 9 and 12-14 is not taught or suggested by Takikawa et al. in view of Duret et al.

Claims 7, 8 and 10 were rejected under 35 USC 103 as being obvious over the previously cited references considered further in view of Usui. The Usui reference does not overcome the deficiencies of Takikawa et al. and Duret et al. as described above.

In view of the preceding amendments and remarks, it is submitted that the claims remaining in the application are directed to patentable subject matter, and allowance is solicited. The Examiner is urged to contact applicant's attorney at the number below to expedite the prosecution of this application.

Respectfully submitted,



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"Version with markings to show changes made."

--5. (twice amended) A high-pressure pipe assembly, comprising:

a metal pipe having opposite first and second ends, a connecting head adjacent said first end, said connecting head having a seat surface flared outwardly from said first end, [and] a cylindrical surface extending from said seat surface away from said first end and a bearing surface extending inwardly from an end of the cylindrical surface remote from the seat surface, said cylindrical surface having a selected outside diameter, a cylindrical body extending from said bearing surface of said connecting head toward said second end, said cylindrical body having an outside diameter less than said selected outside diameter of said cylindrical surface of said connecting head, a passage extending centrally through said metal pipe from said first end to said second end, portions of said passage within said connecting head defining an annular groove spaced from said first end, [said assembly further comprising] and

a unitarily formed sleeve washer having opposite first and second ends, a first portion of said sleeve washer extending from said first end toward said second end thereof having a first cylindrical inner surface surrounding and closely engaging at least a portion of said cylindrical surface of said connecting head, [said sleeve washer further having a cylindrical outer surface facing oppositely from said cylindrical inner surface and extending substantially from said first end of said sleeve washer to a location aligned with said cylindrical body of said metal pipe, and] a second portion[s] of said sleeve washer [adjacent] extending from said second end thereof toward the first end having [a thick-walled cylindrical portion with] a second cylindrical inner surface surrounding and closely engaging portions of said cylindrical body adjacent said connecting head and an inner

bearing surface extending between said first and second cylindrical inner surfaces and
closely engaging the bearing surface of said connecting head, said sleeve washer further
having a cylindrical outer surface facing oppositely from said first and second cylindrical
inner surfaces and extending substantially from said first end of said sleeve washer to a
location aligned with said second cylindrical inner surface of said sleeve washer, first said
portion of said sleeve washer defining a first radial thickness and said second portion of
said sleeve washer defining a second radial thickness, said second radial thickness being
greater than said first radial thickness, and an annular outer bearing surface extending
substantially orthogonally [between] to said second cylindrical inner surface [of said thick-
wall cylindrical portion and said cylindrical outer surface] and facing second end of said
sleeve washer.--